Network Node Manager (NNM) Advanced Business Administration

ID NNMABA **Price** 4,000.— €(excl. tax) **Duration** 5 days

Important notes for the booking of Open Text trainings

Please note that prepayment is required for participation in an Open Text training course. Participation in a training course is possible for 12 months after booking the course. Cancellations are excluded. For further information, please refer to **our** General Terms and Conditions.

Course Overview

NNM is a core component of the OpenTextTM Network Operations Management (NOM) solution. The NNM Advanced Business Administration is the second course in the NNM series and complements the NNM Business Administration Fundamentals course.

This five-day course teaches you how to use the NNM solution to monitor and manage their enterprise networks at an advanced level. You are expected to have graduated from the NNM Business Administration Fundamentals course, and have a good understanding of TCP/IP, and the underlying networking protocols.

The course helps you build on that knowledge and teaches you how to use the various data collection components, both SNMP and non-SNMP-based, and how to analyze the gathered data. You will also learn how to configure complex configurations for high availability, application failover, and large global deployments. You will also learn how to work with advanced protocols such as SNMPv3 and IPv6, configure secure deployments, and how to integrate NNM with external authentication and authorization systems such as LDAP or automation systems such as Network Automation.

The class provides an opportunity to develop hands-on experience in configuring the tool, integrating applications, learning about authentication and authorization, gaining visibility into the traffic, performance and load of the network, new technologies such as webhook and streaming, and continuing their training in managing events using NNM.

The course uses lectures and a series of hands-on labs to teach the course material.

Highlights:

- Provide an overview of NOM functionality and operation
- Manage SNMP-based data collectors
- Manage non-SNMP based data collectors
- Learn how to manage streaming devices
- Explain concepts such as deep monitoring, and how to collect the related data
- Learn about reporting and analyzing data using the OPTIC Data Lake
- Describe security and certificates for secure communications
- Learn about managing virtual devices
- Explain advanced protocols such as SNMPv3 and IPv6
- Learn how to configure complex high availability and global deployments
- Learn how to manage remote networks using the Network Edge Observer
- Troubleshoot network issues
- Customize device attributes and the user interface

Who should attend

This course is intended for:

- Network engineers
- Network Operations Center (NOC) operators
- Support staff
- Operation managers

Prerequisites

To be successful in this course, you should have the following prerequisites or knowledge:

- Network management operations principles and practices.
- TCP/IP and industry-standard networking protocols.
- Familiarity with network devices such as routers, gateways, firewalls, and switches.
- Systems and network administration.
- Familiarity with Linux command language and shell

scripting.
- Successfully have completed 3-6901 – NNMi Basic Administration and Configuration, or have used NNM at a Business Administrator level for a minimum of six months.

Course Objectives

On completion of this course, participants should be able to:

- Describe the OPTIC Data Lake (ODL) and its interaction with NNM.
- Explain the intelligent Smart Plug-Ins (iSPIs) such as Quality Assurance iSPI (QA), multicast iSPI, MPLS iSPI, and traffic iSPI.
- Discuss the new data collection capabilities offered by Open Data Ingestion (ODI), Webhook, and Telemetry.
- Understand the concepts of Deep Monitoring.
- Implement application failover and High Availability (HA).
- Configure Regional and Global Network Managers (RNM/GNM).
- Use REST APIs for managing and monitoring.
- Monitor your enterprise network using advanced protocols such as IPv6 and SNMPv3.

Course Content

- Course overview
- Introduction to NOM on OMT
- SNMP data collection
- Non-SNMP data collection
- NOM and OPTIC Data Lake
- Overlay support
- Application failover
- NNM Global Network Management
- Network Edge Observer
- Security and certificates
- Integrating NNM, LDAP and NA
- NOM REST API
- Managing virtualization
- NNM licensing
- Advanced protocols
- Advanced incident configuration
- Pseudo objects
- Custom attributes
- User interface customization

Detailed Course Outline

Chapter 1: Course overview

- Identify the content and objectives of the course.
- Define the class schedule and class logistics.
- Identify the related courses and next steps.
- Discuss lab environment details.

Chapter 2: Introduction to NOM on OMT

- Describe the concept of Network Operations Management (NOM)
- Explain the operation of OPTIC data lake (ODL) and its role in NOM
- Describe the concept of the Optic Management Toolkit and its role in the deployment of ODL and NOM
- Explain the high-level architecture of NOM and its deployment modes
- Describe how NOM can operate in the OpenText cloud
- Explain the reporting capabilities of NOM and ODL working together
- Describe the reporting technologies that can be used for dashboarding and reporting

Chapter 3: SNMP data collection

- Explain the concepts of :
- Quality of Service (QoS)
- IP Service Level Agreements (IP SLAs)
- Virtual Routing and Forwarding (VRF)
- Describe the following NNMi intelligent Smart Plug-Ins (iSPIs):
- 3a. Quality Assurance (QA) iSPI and Intelligent Response Agent (iRA)
- 3b. Multiprotocol Label Switching (MPLS) iSPI
- 3c. Traffic iSPI
- 3d. IP Telephony (IPT) iSPI
- 3e. Multicast iSPI

Chapter 4: Non-SNMP data collection

This chapter is comprised of the following sub-modules:

- 4a. Custom Poller
  - Define a MIB expression
  - Configure a collection policy
  - Define a collection threshold
  - Export collected data to a CSV file
  - Define MIB expressions and collections using the CLI
- 4b. Open Data Ingestion (ODI)
  - Describe the value proposition of ODI
  - Explain the process inserting data using ODI
  - Understand the concepts of Authentication, Data Set definition, and data insertion using the REST API
  - Explain how raw, aggregation and forecast data sets are created

- Describe the licensing nuances of using ODI
- 4c. Webhook
  - Explain the value of the Webhook mechanism and its purpose
  - Discuss the principles of operation of Webhook
  - Explain how Webhook works in an application failover or HA environment
  - Use the Webhook CLI commands
  - Understand the Webhook mapping rules
- 4d. Telemetry
  - Explain the concept of telemetry
  - Describe the differences between MIN and YANG model
- 4e. Deep Monitoring
  - Discuss the concept of Deep Monitoring as defined by OpenText
  - Explain the NNM use case for Wireless Deep Monitoring
  - Explain the NNM use case for Firewall Deep Monitoring
  - Discuss the licensing scheme for deep monitoring

Chapter 5: NOM and OPTIC Data Lake

- Describe the main feature of Optic reporting
- Enumerate the different types of reports and dashboards available in the NOM UI
- Navigate the NOM UI
- Describe some of the available stakeholder dashboards
- Explain how to create a FLEX report
- Describe how to navigate the Performance Troubleshooting console
- Use the Performance Maps

Chapter 6: Overlay support

- Explain the concept of an overlay
- Describe the Cisco ACI overlay
- Explain the Firewall virtual system overlay
- Describe the SDWAN overlay support

Chapter 7: Application failover

- Summarize the NNMi application failover functionality
- Configure application failover
- Use cluster administration commands

Chapter 8: NNM Global Network Management

- List the functions and features of Global Network Management (GNM)
- List the two main components of GNM
- Analyze use case scenarios for GNM
- Outline different deployment scenarios for GNM
- List prerequisites for GNM deployment
- Analyze GNM-iSPI relations
- Identify high-level GNM architecture
- Plan and configure GNM for NNM

Chapter 9: Network Edge Observer

- Explain the value proposition and purpose of the Network Edge Observer (NEO)
- Describe the configuration of NEO with NNM
- Explain the similarities and differences between NEO, RNM and GNM

Chapter 10: Security and certificates

- Explain the importance of secure communications
- Discuss the basics of secure communications such as encryption, certificates, certificate authority (CA)
- Explain what secure communications adds to NOM
- Discuss where secure communications are used in NOM

Chapter 11: Integrating NNM, LDAP and NA

- Describe the products that integrate with NNM
- Discuss the integration of NNM with Network Automation (NA)
- Integrate NNM with Lightweight Directory Access Protocol (LDAP)

Chapter 12: NOM REST API

- Explain the APIs available with NNM
- Describe the concept of a REST API
- Explain the benefits of a REST API
- Describe the flow of a REST API
- Explain the details of a REST API request
- Describe the NNM data model

Chapter 13: Managing virtualization

- Identify the hypervisor (ESXi Server) hosting a Virtual Machine (VM)
- Use a loom map to identify the hosting hypervisor's Network Interface Card (NIC) that the VM is connected
- Use a wheel map to identify the hosting hypervisor's NIC to whom the VM is connected

Chapter 14: NNM licensing

- Describe the NOM license structure across different capabilities

Chapter 15: Advanced protocols

This module is comprised of the following sub-modules:

- 15a. IPv6
  - Specify the types of IPv6 addresses
  - Identify the notation used in writing IPv6 addresses
  - Describe how NNMi supports IPv6
  - Locate and manage IPv6 and IPv4 devices
  - List the prerequisites for deploying IPv6
- 15b SNMPv3
  - List the components and architecture of SNMPv3
  - Analyze how SNMPv3 security works
  - List the general steps for configuring a network device for SNMPv3
  - Identify the main design goals for SNMPv3
  - Configure NNM to manage SNMPv3-enabled devices

Chapter 16: Advanced incident configuration

- Define a node and interface group specific to trap handling
- Use the following event correlation features:
- Dampening
- Payload filtering
- Pairwise
- Rate
- Deduplication
- Custom correlation
- Causal rules

Chapter 17: Pseudo objects

- Explain the concept of a pseudo object
- Create pseudo nodes
- Create pseudo interfaces
- Create pseudo connections
- Display a Layer 2 connectivity diagram with pseudo-objects

Chapter 18: Custom attributes

- Add custom attributes to nodes
- Add custom attributes to interfaces
- Populate custom attributes from the CLI

Chapter 19: User interface customization

- Create a menu
- Create a menu item
- Create a launch action
- Create a line graph action

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Germany
Fast Lane Institute for Knowledge Transfer GmbH
Tel. +49 40 25334610
info@flane.de / www.flane.de

Austria
ITLS GmbH
(Partner of Fast Lane)
Tel. +43 1 6000 8800
info@itls.at / www.itls.at

Switzerland
Fast Lane Institute for Knowledge Transfer (Switzerland) AG
Tel. +41 44 8325080
info@flane.ch / www.flane.ch